



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter

Governor

Dee C. Hansen

Executive Director

Dianne R. Nielson, Ph.D.

Division Director

355 West North Temple

3 Triad Center, Suite 350

Salt Lake City, Utah 84180-1203

801-538-5340

April 29, 1991

Mr. Larry A. Drew, Manager
Environmental Affairs
Hecla Mining Company
6500 Mineral Drive
Box C - 8000
Coeur d'Alene, Idaho 83814-1931

Dear Mr. Drew:

Re: Conditional Approval of Mill Tailings Facility Reclamation Plan - Escalante Unit, Hecla Mining Company, Escalante Silver Mine, M/021/004, Iron County, Utah

The Division has completed its review of Hecla Mining Company's latest revised reclamation proposal for its Mill Tailings Facility - Escalante Unit, received December 13, 1990. The Bureau of Land Management, Cedar City District Office and the Beaver River Resource Area have also reviewed this proposal. The Cedar City area office of the Division of Wildlife Resources, has also reviewed the plan. We have incorporated some of both agencies comments into this review letter. The BLM will also need to be satisfied and approve of the final reclamation proposal before the plan is implemented. Copies of both agencies original comments are attached for your reference.

The reclamation plan has been found conceptually complete and sufficient for the Division to grant a conditional approval of the proposal. The following conditions must be accepted by Hecla Mining Company and satisfied before the Division can proceed with issuance of final approval:

GENERAL COMMENT:

Page 1, 1.0 Introduction - The latest reclamation proposal was prepared and formatted pursuant to the Division's older set of rules (Rule M-10, Reclamation Standards). Because this is a **new and amended proposal** to the original approved mining and reclamation plan for the Escalante Mine & Mill, the older rules and reclamation standards are not applicable to this application. Therefore, the Division has processed and prepared its review comments pursuant to our more recently revised rules (December 1988).

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TECHNICAL COMMENTS/CONDITIONS:

R613-004-110(3). Reclamation Plan - Roads

Page 17, 7.0 Roads, Pads & Borrow Areas, and page 25, 11.4 Access Road Reclamation - The operator proposes to leave a one-vehicle-width road to the tailings area, which will be left in a suitable condition for continued use upon final reclamation.

✓ The Division will require that the plan be revised to include a statement indicating that Hecla will perform complete reclamation of this road upon final abandonment of the property, or provide a provision verifying BLM acceptance of responsibility for continued post-mine use and maintenance.

R613-004-110(5). Reclamation Plan - Seeding

The operator has not provided a seed mix for the tailings pond reclamation, though one is provided for the borrow sites. In developing any seed mix for the tailings site, shrubs need to be omitted. They are deep rooting and would have a detrimental effect on the clay liner. Shrubs will eventually invade onto the site, but their invasion will be inhibited by a well established stand of grasses and forbs.

A good revegetation seed mix can be obtained by using the same seed mix provided on page 24 of the plan, but omit the shrubs. Also, it will be necessary to increase individual rates of seed application of grass and forb species, to achieve 14 lbs/ac or greater. Crested wheatgrass can remain in the mix, but reduce the rate to 1 lb/ac, and add riparian wheatgrass and western wheatgrass at 2 lb/ac each. Also, Indian ricegrass should be added to the mixture. The mixture should include the following:

<u>Species</u>	<u>lb/ac PLS *</u>
Grasses	
Bottlebrush squirrel tail	0.5
Needle and thread	0.5
Crested wheatgrass	1.0
Riparian wheatgrass	2.0
Western wheatgrass	2.0
Indian ricegrass	2.0
Russian wildrye	1.0

Forbs

Lewis flax	0.5
Palmer penstemon	1.0
Yellow sweetclover	2.0
Alfalfa	1.0
Gooseberry & or Goldenmallow	1.0
✓ Small burnet	1.0

Total 15.5

*These rates are for drill seeding only. The rates need to be increased if seeds are to be broadcast.

R613-004-110(5). Reclamation - Seed Bed Preparation

1. The plan indicates that topsoil will be salvaged and replaced over borrow areas, then reseeded. The plan (borrow area reclamation) does not discuss whether amendments will be added to the soil material or not, or the depth of soil reapplication. These specifications must be developed further by the operator. ✓ The Division recommends 1 foot of topsoil reapplication and either fertilizing or incorporating in a hay mulch at 3,000 lbs/ac.
2. Borrow area suitability cannot be determined based on the information provided in the plan. The onsite data, which address the borrow areas indicates a variable range of soil depth and different clay contents exist, but this is not developed in the plan. The operator needs to incorporate this information into the plan for each borrow area.

The BLM has expressed some concern that the a significant portion of the areas being considered for tailings pond reclamation involve public land. There is some question as to whether the borrow areas under consideration were ever included in the original environmental assessment (EA) for development of the mine plan. If additional public lands are proposed for disturbance, that were not covered under a previous EA, then it may be necessary to have these areas evaluated, according to BLM specifications, before any new disturbance occurs.

Under section 11.2, Clay and Subsoil Borrow Area Reclamation, pages 23-25, the plan indicates that some hand-transplanting of shrubs may be used. The Division of Wildlife Resources has noted that specifics for transplanting are not mentioned in the reclamation plan. Transplanting should be done in the spring following direct seeding. Transplanted shrubs should be planted 435 stems/acre, or one shrub for every ten feet. To account for mortality, one shrub every five feet would be most effective.

3. The plan calls for a rooting medium of approximately 18 inches over the tailing material. This depth should be sufficient for plants during normal years of precipitation. However, the depth may be insufficient during periods of drought to sustain an acceptable plant cover. There will be a potential, if the climate continues to be drought prone, that the vegetative success over the pond will be poor, especially if the area is eventually open to grazing. Removal of the plant cover may eventually expose the tailings, creating a dust problem.

The tailings, themselves, cannot be considered part of the rooting medium, because of their deleterious nature, thus the effective rooting depth will remain permanently at 18 inches. The problem of too shallow a rooting medium can be resolved by **increasing the depth** of material spread over the tailings. A deeper planting medium would resolve three problems that may develop in association with the pond reclamation:

- (a) provide a adequate rooting depth for reestablishment of all plants;
- (b) limit the amount of moisture which might eventually infiltrate into the tailings, thus creating a bathtub effect and possible build-up of deleterious leachate; and
- (c) help prevent/minimize potential plant root damage to the clay liner by suspending plants higher over the liner.

The Division requests that Hecla exhaust every effort to obtain and utilize all possible soil and/or substitute soil resources that may be available and salvageable, in an effort to **maximize the thickness** of the revegetation rooting medium over the clay liner. Hecla may be asked to increase the depth of the rooting medium on the reclaimed tailings impoundment, if initial revegetation efforts fail to meet revegetation standards, and it is determined that this failure was attributable to a deficit of rooting medium.

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R613-004-111(2, 3 & 13). Reclamation Practices - Drainages, Erosion Control and Revegetation

Page 2, 4.0 Impoundments, and 5.0 Slopes - The operator has indicated that a new impoundment runoff ditch will be constructed to divert surface/storm runoff from the tailings cap and adjacent slopes around the tailings area and into the natural channel below the dam. An average sloped of @0.2% is proposed to preclude erosion. The side slopes of the runoff ditches will also be constructed to prevent erosion.

Given the size and extent of the surface to be disturbed by the proposed drainage ditches, the Division will require that the operator incorporate some form of supplemental erosion control measure(s) to reduce potential channel erosion and the offsite transport of excess sediment from these ditches. Suggested techniques could include implementing a revegetation provision into the reclamation plan that involves the runoff ditches.

Direct broadcast or drill seeding and mulching of the ditches (mulch to be secured), or implementation of erosion control blankets (eg., curlex blankets, or a similar product) to help stabilize the side slopes and bottom of the ditches while the vegetation is becoming established is recommended.

Page 20 of the reclamation plan indicates that the existing fence protecting the tailings impoundment will be removed once revegetation standards are met.

Because of the high likelihood that future, uncontrolled livestock grazing could cause significant damage the revegetation efforts on the tailings pond, Hecla will be required to modify the existing fence, or install a permanent BLM standard livestock fence. Such a fence should be constructed to allow safe passage for wildlife, but restrict usage by livestock.

R613-004-110. Reclamation Plan, and R613-004-113. Surety

The reclamation plan first describes the tailing area as encompassing 58 acres of surface area and later refers to the tailings as involving 65 acres. It is assumed that the 65 acre figure represents the tailings area after the final regrading has been completed. This 65 acre figure was used in the Division calculation of a reclamation surety estimate.

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The plan calls for the removal of all structures and equipment from the surface areas prior to regrading and reclamation. No description of these structures or equipment was included in the plan, therefore, a general lump sum was used in the Division estimate.

The plan calls for placing 6" of clay, 14" of subsoil and then 4" of topsoil over the tailings. The plan does not state whether the clay will be compacted or placed wet. The elastic properties of the clay cap and, therefore, the integrity of the barrier will be greatly improved by wetting it or placing it in a condition wet of optimum. The Division reclamation estimate does not include any compaction or wetting of the clay cap at this time.

The plan mentions an existing topsoil stockpile, but does not mention the amount of topsoil stored. It is unknown if sufficient topsoil exists to cover the 65 acre tailings area with a 4" depth. The Division estimate assumes that sufficient topsoil does exist with no excess.

The clay and subsoil material used in covering the tailings will come from borrow areas in various locations. The reclamation plan states that all of the possible borrow areas encompass approximately 180 acres. The operator estimates that half of this area will eventually be disturbed. Due to the sporadic occurrence of the material deposits, no estimate of the quantities available has been made and, therefore, the Division estimate uses a more conservative figure of 120 acres of disturbance at these borrow areas. The plan calls for salvage of topsoil at any borrow area used, however, no estimate of the depth or volume of topsoil available has been presented. The volume and cost of redistributing this topsoil was considered to be minimal and absorbed by other costs in the Division estimate.

The plan does not include the application of mulch at any revegetation sites other than the tailings area, nor the application of fertilizer to any area. Since the integrity of the tailings cap also relies on successful revegetation, the application of fertilizer to the tailings topsoil layer may be desirable. Successful revegetation of the surrounding area will help prevent erosion and reduce the amount of surface runoff which will further protect the tailings area.

The addition of mulch and fertilizer to those areas being revegetated may, therefore, be worthwhile in the long term stabilization of this site. The Division estimate does not include mulch or fertilizer application at this time.

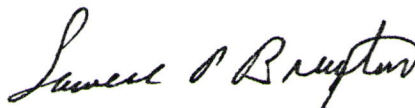
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The Division acknowledges receipt of a January 31, 1991, letter from the State Health Department, Bureau of Water Pollution Control (BWPC) to Hecla Mining Company, regarding their decision to require a State Ground Water Discharge Permit for the tailings facility. The letter suggests scheduling a meeting between DOGM, BWPC and Hecla to work out a resolution to those concerns which will have an impact on the implementation of the reclamation plan. We concur with this suggestion and recommend that you contact us to set up a convenient time and place for this meeting as soon as your schedule will allow. We request that the Bureau of Land Management (BLM) also be included as a participant in this meeting.

Upon successful resolution of these outstanding conditions, the Division will be prepared to finalize its approval of the reclamation plan. The Division has not historically supported or recommended Self-Bonding and Indemnity Agreements as an acceptable form or reclamation surety. However, we will present Hecla's self-bonding request to the Board of Oil, Gas and Mining for their consideration. The BLM will also need to concur with the amount and form of reclamation surety.

Thank you for your patience and cooperation in completing the permitting action. Please contact me, or any member of the Minerals technical staff should you have questions or concerns regarding the content of this letter.

Sincerely,



Lowell P. Braxton
Associate Director, Mining

jb

Attachments

cc: Doug Bauer, BLM, Utah State Office
Paul Carter, BLM, Cedar City, D.O.
Clair Jensen, DWR, Cedar City
Don Ostler, BWPC
Arthur L. Tait, BLM, Beaver River RA
Minerals staff

M021004.6

RECLAMATION ESTIMATE

Hecla Mining Company

Escalante Silver Mine – Mill Tailings Facility Iron County

M/021/004

last revision

2/21/91

Prepared by Utah State Division of Oil, Gas & Mining

Reclamation Details

- All structures and equipment to be removed from the site (1.5 acre EST)
- Tailings covered by: 6" clay, 14" subsoil, 4" topsoil (65 acres)
- Hay incorporated into tailings subsoil & topsoil caps(2-3,000 lb/acre)
- Road to tailings reduced via ripping & seeding(5,800' x 12' = 1.6 acre)
- Impoundment runoff ditch constructed around tailings cap (7,200')
- Borrow areas ripped, topsoiled & seeded (ASSUMED 120 acres)
- Roads to borrow areas ripped, water barred & seeded (5 acres)
- Rip topsoil stockpile area & drill seed (9 acre ESTIMATE)
- Monitor groundwater wells for a minimum of 2 years after reclamation
- Fence maintenance for 3 years (7,900 ft long)
- Areas revegetated via drill seeding unless impractical(=>hand seeding)
- Disturbed area = office+tailings+borrow+roads+stockpile= 202 acres

Description	Amount	\$/Unit	Cost-\$
-Structure demolition/removal	lump sum	5,000	5,000
-Tailings clay cap	52,433 CY	2.92	153,104
-Tailings subsoil cap	122,344 CY	1.42	173,728
-Tailings topsoil cap	34,955 CY	1.93	67,463
-Disc hay into tailings soils	65 acre	357	23,205
-Ripping tailings road (0.40 mph)	1.6 acre	603	965
-Impoundment runoff ditch construction	7,200 ft	0.32	2,304
-Ripping borrow areas (0.60 mph)	120 acre	407	48,840
-Ripping borrow area roads (0.50 mph)	5 acre	485	2,425
-Rip topsoil stockpile area	9.0 acre	407	3,663
-Reseed all disturbed areas	202 acre	330	66,660
-Monitor groundwater wells(twice/month)	2 yr	7,200	14,400
-Fence maintenance(twice/month)	3 yr	2,400	7,200
SUBTOTAL			480,698
+ 10% CONTINGENCY			48,070
SUBTOTAL			528,768
+ 5 yr ESCALATION(1.45%)			39,464
TOTAL			568,231
ROUNDED TOTAL IN 1996-\$			\$568,000

WAS OMITTED
FROM ORIGINAL
TOTAL
SUBTOTAL
568,357

ROUTING AND TRANSMITTAL SLIP

Date *11/9/91*TO: (Name, office symbol, room number,
building, Agency/Post)

Initials

Date

1.

Wayne Hedberg

2.

UOOGM

3.

4.

5.

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

| Wayne - Attached are our comments for the Hecla Recl. Plan. Although these represent draft comments, you may use them as final since we do not intend to change them. Please call if you have any questions. Paul

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)

Room No.—Bldg.

PAUL CARTER

Phone No.

5041-102

GPO : 1987 0 - 196-409

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

UNITED STATES DEPARTMENT OF THE INTERIOR

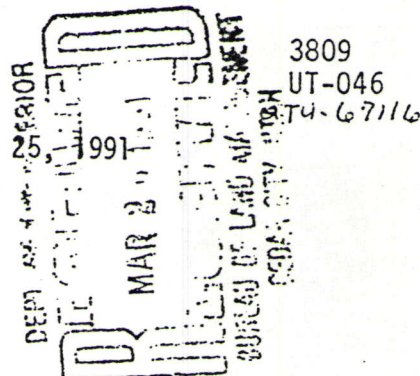
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APR 08 1991

BUREAU OF LAND MANAGEMENT
Beaver River Resource Area Office
444 South Main Street, Suite C-3
Cedar City, Utah 84720
(801) 586-2458

DIVISION OF
OIL GAS & MINING

March 25, 1991



MEMORANDUM

TO: District Manager, Cedar City *gph*
3/22/91

FROM: Area Manager, Beaver River Resource Area

SUBJECT: Comments on the Hecla Mine Reclamation Plan for the tailings facilities.

The reclamation plan as submitted identifies the need to obtain clay and subsoil barrow material from adjacent lands to cover the tailing facilities. It appears that topsoil, in addition to that now stockpiled may also be needed to cover the tailings facilities.

Preliminary calculations and Hecla's statement indicates that it will require 180 acres of additional surface disturbance to rehab the 65 acres now occupied by the tailings facilities. Of this additional disturbance, it is estimated that over 75% will involve public land.

In searching the files, I find no mention or consideration in the original plan of operations of the need to disturb additional lands. Thus, during the initial phase of the mine plan, no impacts to the environment were considered for the proposed reclamation. I find this to be unacceptable and can not approve their plan without:

1. Completing an environmental assessment with proper clearances. The assessment must include:

- a. A discussion of alternative sources (Private, State and Federal) where needed material to accomplish the rehabilitation might be obtained.
- b. Include additional information from a more definitive drilling or testing program to determine the availability of clay and other material needed to complete their stated reclamation plan in order to assess the actual area of disturbance.
- c. A determination of possible impacts from the new disturbance and identified mitigating measures to reduce or eliminate impacts etc.

If an alternative source of materials is found that does not involve additional disturbance of public lands then there would not be a need for an E.A. and the changes to the plan required and stated in UDOGM draft letter (I concur with UDOGM findings) is adequate to meet the rehabilitation requirements of the tailings facilities

If you conclude that an E.A. is necessary, the Resource Area does not have the capability to complete a document in the near future for this rehabilitation plan. A third party contract to complete such a document would be acceptable. A final determination and approval of the reclamation plan could then be made.

We must also be aware of the January 31, 1991 letter from the Department of Health, Division of Environmental Health for Hecla to obtain a Ground Water Permit and the Water Pollution Control Committee's concern for possible underground water contamination.

Arthur L. Cant

COMMENTS-RECLAMATION PLAN-HECLA ESCALANTE UNIT --

Max V. Hodson

General Comments:

1. Because of the complexity of the planned action frequent BLM supervision will be required. Proper soil material is needed for reclamation and sufficient soil reclamation residue needs to be left in the barrow areas for reclamation. Also, care needs to be taken to assure that no soil surface disturbance will occur, than what is necessary. ^{private?} (more)
2. It is assumed that all barrow areas occur on BLM land. The plan is silent on this matter. Are some the acreage on public land? If not could some be shifted to Hecla owned land?
3. To assure seeding establishment, temporary fencing should be required around the reclaimed barrow areas .

Section 2.0 Land Use - The words "occasional grazing" is in question. Such small rangeland seeded areas will always receive heavy grazing when grazing animals are on the range.. Grazing intensity should be controlled or the reclaimed area will become overgrazed.

Section 3.0 Public Safety and Welfare - Should not a permanent fence be left around the tailing pond area? This would eliminate cattle grazing and protect the established grass cover from overgrazing. Especially, the grass cover on the dam's steep slopes. Preventing erosion to the dam, which is important to keeping the tailings in place.

Section 11.2 Clay and Subsoil Barrow Area Reclamation - The data in this section says that Hecla has investigated the barrow areas for reclamation soil material. This onsite data indicates a variable range in soil depth and different clay content . It would be helpful if this kind of data were part of the plan for each barrow area. Otherwise, BLM can not make judgments concerning barrow area soil suitability. If this data is not provided, then it should be requested so that each soil area suitability can be determined by the BLM.

From the soil data in this section, a person can not determine the acreage of the Checkett soil being used for barrow areas. Checkett is a shallow soil to bedrock and the profile contains 35 percent or rock fragments. From the data and barrow area locations, a person can assume the barrow areas are mostly on included soils associated with Checkett. This is insignificant, as long as suitable soil material is being used for reclamation.

Section 11.1 Tailing Impoundment Reclamation - This section refers to the Checkett soil (see para.. 3, 5 , & 8). It may be proper for Hecla to refer to the Checkett soil for use as barrow material, but they should not use Checkett soil characteristics (see para.. 5 & 8) to decide reclamation procedures. The reconstructed profile or the residue material in the barrow areas, will no longer represent the profile of the Checkett soil. Changing the natural soil profile changes the soil properties and soil characteristics. Thus, reclamation procedures need to be based on the reconstructed profile and residue soil material.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SHORT NOTE TRANSMITTAL

12-18-90

(Date)

TO : files
FROM : Bob Edwards - Nat. Res. Spec.

SUBJECT: Reclamation Plan - Escondido Silver Mine

On 12-18-90 I reviewed the reclamation plan for the mill tailings facility of the Escondido Silver Mine operation of Hecla Mining Company.

My review was concerning any resource problem or questions regarding the Soil, Water, Air program.

The plan as proposed appears to be adequate regarding the needs for Soil, Water, & Air Mgt.

Two recommendations are as follows:

- 1- Regarding the seed mixture for rehab. - The use of rabbitbrush (tall & small) should be taken out. Another browse species could be used in place of rabbitbrush such as bitterbrush & or cliffrose. The pounds per acre of seed is plenty without rabbitbrush.

- 2- The soil borrow areas should be more intensively investigated & better defined. This can be coordinated with BLM District office & Res. Area personnel.

Bob Edwards
Nat. Res. Spec.
Bever River R.A.

These species
are likely to establish
naturally



Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Timothy H. Provan
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Southern Region
622 North Main Street
P.O. Box 606
Cedar City, Utah 84721-0606
801-586-2455

DOGM
MINERALS PROGRAM
FILE COPY

Wayne route to mine file

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APR 26 1991

DIVISION OF
OIL GAS & MINING

April 23, 1991

Mr. Lowell Braxton, Administrator
Natural Resources Department
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Mr. Braxton:

Thank you for the opportunity to comment on the Reclamation Plan Final Report for the Escalante Unit Mine. Through past correspondence with your office we have expressed our specific concerns regarding the reclamation of the Escalante Unit (see letter of Feb. 15, 1990). Although we are pleased to see several of our comments addressed in the Final Report, we are very concerned about those issues not resolved. They are as follows:

1. Topsoil

We feel that four inches of topsoil over 14 inches of waste rock is not adequate substrate for plant persistence and maintenance at this site. Although the subsoil has been increased by 7 inches, we still maintain that one foot of topsoil over two feet of waste rock is necessary for proper re-vegetative growths.

Following sloping, the complete area should be ripped 2-4 feet deep to allow mix of topsoil and rock. Ripping would break up compacted soil catchment basins, increase water filtration and holding capacity, improve rooting and create a proper environment for germination, establishment and reproduction of plant species.

2. Plants

Specifics for transplanting are still not mentioned in the reclamation plan. Transplanting should be done in the spring following direct seeding. Transplanted shrubs should be planted 435 stems/acre, or one shrub for every ten feet. To account for mortality, one shrub every five feet would be most effective.

Mr. Lowell Braxton, Administrator
April 24, 1991
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3. Fencing

On page 20 of the Reclamation Plan, under structures and equipment, it states that the fence will be permanently removed when Hecla and DOGM agree that self-sustaining vegetative cover is established. This should be a time period of at least 3-5 years. Once the fence is removed, precautions should be taken to ensure the area is not damaged by livestock grazing, since the area will probably have better quality and quantity forage than adjoining areas. A BLM standard livestock fence should be installed to allow safe passage for wildlife and keep grazing under control.

Currently, reclamation is far behind schedule and the area poses a potential urban and wildlife hazard. The UDW strongly encourages the DOGM to use its enforcement authority to ensure timely and proper reclamation of this site. If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

F. Clair Jensen
Regional Supervisor

FCJ/vt